Osram Sylvania	**)**	**Departmental**
Lincoln County	**)**	**Findings of Fact and Order**
Waldoboro	**)**	**Air Emission License**
A-407-71-H-R	**)**	

After review of the air emissions license renewal application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Osram Sylvania (Osram) of Waldoboro, Maine has applied to renew their Air Emission License permitting the operation of emission sources associated with their tungsten lamp filament manufacturing facility.

B. Emission Equipment

Osram is authorized to operate the following equipment:

Fuel Burning Equipment

Equipment	**Maximum Capacity (MMBtu/hr)**	**Maximum Firing Rate (gal/hr)**	**Fuel Type, % sulfur**	**Stack #**
Boiler #1	10.5	75	#2 fuel oil, 0.5%	A
Boiler #2	10.5	75	#2 fuel oil, 0.5%	B

Electrical Generation Equipment

Equipment	**Power Output (kW)**	**Firing Rate (gal/hr)**
Emergency Generator #1	135	9.6
Emergency Generator #2	135	9.6
Emergency Generator #3	135	9.6
Fire Pump	98	7.0

Process Equipment

Equipment	**Pollutants Emitted**	**Pollution Control Equipment**	**Stack #**
Molybdenum Mandrel Dissolving Operation (MMD)	H_2SO_4, NO_X	Scrubber System #1	D
Water Treatment and Acid Tanks, Acid Reclaim Distillation Unit, and Vacuum Evaporator	NO_X, HCl	Scrubber System #3	F

C. Application Classification

The application for Osram does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of current licensed emission units only.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Air Regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emission from the source being considered; and
- the economic feasibility for the type of establishment involved.

Process Description

Osram produces various types of wound tungsten filaments. This process involves the winding of tungsten around molybdenum mandrels. The mandrels are then removed by an acid dissolving process.

Osram utilizes a combination of sulfuric and nitric acid to dissolve the molybdenum mandrels, resulting in emission of nitrogen oxides, which are sent to a counter current packed bed scrubber system (Acid Room Scrubber). The acid is then recycled to be reused. The process of recycling involves either a heated

distillation unit (Acid Reclaim Unit) or a vacuum system (Vacuum Evaporator). Emissions from both the Acid Reclaim Unit, the Vacuum Evaporator and emissions from virgin and used materials storage tanks are collected and controlled by a second counter current packed bed scrubber system (EPA Building Scrubber).

In the first steps of processing the tungsten, a lubricant coating of carbon has to be removed. This procedure is performed by passing the tungsten through electrically heated chambers as high as 1500 °C under a high H_2 environment. The exhaust from the heaters are kept in contact with a pilot light of propane to burn any excess O_2 or hydrogen and to prevent the occurrence of explosive conditions. Osram operates anywhere from 15 to 25 small propane pilot flames throughout the facility. Osram uses approximately 11,000 gallons of propane a year. Combined emissions associated with the propane pilots total less than 1.0 TPY and are therefore considered to be negligible.

B. Process Emission Sources

Both scrubber systems operate with a counter current contact between the entering gases which travel up the scrubber while water is used to spray down over the packing. Caustic (NaOH) is added for pH control on both scrubber systems.

Both scrubbing systems were tested in September of 1992 for the following parameters and are considered to be receiving BPT:

Location	**Parameter**	**Result (lb/hr)**	
		NO_X	**HCl**
Acid Room Scrubber	NO_X	0.635	N/A
EPA Building Scrubber	NO_X, HCl	0.82	0.011

The Acid Room Scrubber shall be limited to the following, based on continuous operation:

Pollutant	**lb/hr**	**TPY**
NO_X	1.0	4.4

The EPA Building Scrubber shall be limited to the following, based on continuous operation:

Pollutant	lb/hr	TPY
NO_X	1.5	6.6

The EPA Building Scrubber also emits HCL at a rate less that the threshold value in Chapters 115 and 137, and is mentioned for informational purposes only.

Visible emissions from each of the scrubber systems, stacks (D and F) shall each not exceed 5% on a block average basis except for no more than two six-minute blocks in any continuous 3-hour period.

C. Boiler #1

Osram operates a 1961 Cleaver Brooks Boiler the has a heat input rated at 10.5 MMBtu/hr. It fires #2 fuel oil, with a sulfur content not to exceed 0.5% by weight. Boiler #1 is not subject to New Source Performance Standards (NSPS) Subpart Dc, for boilers with a heat input of 10 MMBtu/hr or greater and manufactured after June 9, 1989.

A summary of the BPT analysis for each pollutant is discussed below:

1. PM and emission rates are based upon MEDEP Chapter 103.
2. SO_2 emission limits are derived from a mass balance.
3. NO_X, CO and VOC emission limits are based upon AP-42 data dated 9/98 for commercial/institutional boilers firing #2 fuel oil.
4. Visible emissions from Boiler #1 shall not exceed 20% opacity on a six-minute block average basis, except for no more than 1, six-minute block average in a 3 hour period.
5. Chapter 106 regulates fuel sulfur content, however the limit of 0.5% sulfur by weight is more stringent and shall be used.

D. Boiler #2

Osram operates a 1990 Cleaver Brooks Boiler rated at 10.5 MMBtu/hr heat input of #2 fuel oil with a maximum sulfur content of 0.5%. Boiler #2 is subject to New Source Performance Standards (NSPS) Subpart Dc, for boilers with a heat input of 10 MMBtu/hr or greater and manufactured after June 9, 1989.

A summary of the BPT analysis for each pollutant is discussed below:

1. PM emission rates are based upon MEDEP Chapter 103.
2. SO_2 emission limits are derived from a mass balance.
3. NO_X, CO and VOC emission limits are based upon AP-42 data dated 9/98 for commercial/institutional boilers firing #2 fuel oil.
4. Visible emissions from Boiler #2 shall not exceed 20% opacity on a six-minute block average basis, except for no more than 1, six-minute block average in a 3 hour period.
5. Chapter 106 regulates fuel sulfur content, however 40 CFR Part 60 Subpart Dc is applicable. According to 60.42c(d), 60.42c(h)(1), and 60.44c(g), the limit of 0.5% sulfur by weight shall be used.

E. Emergency Generators #1, #2 and #3

Osram operates three emergency generators rated at 1.32 MMBtu/hr each. The generators currently fire off-road diesel fuel with a sulfur content not exceeding 0.30%.

A summary of the BPT analysis for emergency generators #1, #2 and #3, for each pollutant is discussed below:

1. Emergency Generators #1, #2 and #3 shall each be limited to 500 hr/yr of operation.
2. A BPT PM emission limit of 0.12 lb PM/MMBtu shall be used.
3. The SO_2 emission limit is derived from a mass balance.
4. NO_X, CO and VOC emission limits are based upon AP-42 data dated 10/96 for Stationary Internal Combustion Engines.
5. Visible emissions from emergency generators #1, #2, and #3 shall not exceed an opacity of 20 percent on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.
6. The firing of diesel fuel with a sulfur content not to exceed 0.05% is considered BPT. However since Osram currently has their fuel tanks full of diesel fuel with a sulfur content of 0.30%, and granting the low emissions from these engines due to infrequency of use, Osram is permitted to burn the remaining 0.30% fuel. Once the 0.30% sulfur fuel is gone, Osram shall burn diesel fuel with a sulfur content not to exceed 0.05% in emergency generators #1, #2, and #3.

"Emergency" is defined in Chapter 100 and throughout this document as: "… any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions

attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error."

F. Fire Pump

Osram operates a Fire Pump for emergency purposes. The engine powering the pump is rated at 0.96 MMBtu/hr and currently fires off-road diesel fuel with a sulfur content not exceeding 0.30%.

A summary of the BPT analysis for each pollutant is discussed below:

1. The fire pump shall be limited to 500 hr/yr of operation.
2. A BPT PM emission limit of 0.12 lb PM/MMBtu shall be used.
3. The SO_2 emission limit is derived from a mass balance.
4. NO_X, CO and VOC emission limits are based upon AP-42 data dated 10/96 for Stationary Internal Combustion Engines.
5. Visible emissions from the fire pump shall not exceed an opacity of 20 percent on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.
6. The firing of diesel fuel with a sulfur content not to exceed 0.05% is considered BPT. However since Osram currently has their fuel tanks full of diesel fuel with a sulfur content of 0.30%, and granting the low emissions from this engine due to infrequency of use, Osram is permitted to burn the remaining 0.30% fuel. Once the 0.30% sulfur fuel is gone, Osram shall burn diesel fuel with a sulfur content not to exceed 0.05% in the fire pump engine.

G. Annual Emission and Operating Restrictions

1. Boilers #1 and #2 shall be limited to firing 325,000 gal/yr of #2 fuel oil with a sulfur content not to exceed 0.5% on a 12 month rolling total.
2. Emergency generators #1, #2 and #3, and the fire pump shall each be limited to 500 hr/yr of operation.
3. Emergency generators #1, #2 and #3, and the fire pump shall each fire diesel fuel with a sulfur content not to exceed 0.30% until the supply of such fuel is exhausted. After, emergency generators #1, #2 and #3, and the fire pump shall each fire diesel fuel with a sulfur content not to exceed 0.05%.

4. Osram shall be limited to the following annual emissions, based on a 12 month rolling total:

Total Allowable Annual Emission for the Facility
(used to calculate the annual license fee)
Tons/year

Emission unit	PM	PM_{10}	SO_2	NO_X	CO	VOC
Boiler #1	1.58	1.58	3.97	1.13	0.28	0.03
Boiler #2	0.95	.095	3.97	1.13	0.28	0.03
Emergency Generator #1	0.04	0.04	0.10	1.46	0.31	0.12
Emergency Generator #2	0.04	0.04	0.10	1.46	0.31	0.12
Emergency Generator #3	0.04	0.04	0.10	1.46	0.31	0.12
Fire Pump	0.03	0.03	0.07	1.06	0.23	0.08
Acid Room Scrubber	-	-	-	4.40	-	-
EPA Room Scrubber	-	-	-	6.60	-	-
Total	**2.68**	**2.68**	**8.31**	**18.70**	**1.72**	**0.5**

III. AMBIENT AIR QUALITY ANALYSIS

According to the Maine Regulations Chapter 115, the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Modeling and monitoring are not required for a renewal if the total emissions of any pollutant released do not exceed the following:

Pollutant	**Tons/Year**
PM	50
PM_{10}	25
SO_2	50
NO_x	100
CO	250

Based on the above total facility emissions, Osram is below the emissions level required for modeling and monitoring.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-407-71-H-R subject to the following conditions:

STANDARD CONDITIONS

(1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 MRSA §347-C).

(2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [MEDEP Chapter 115]

(3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [MEDEP Chapter 115]

(4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [MEDEP Chapter 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353. [MEDEP Chapter 115]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [MEDEP Chapter 115]

(7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [MEDEP Chapter 115]

(8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [MEDEP Chapter 115]

(9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [MEDEP Chapter 115]

(10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [MEDEP Chapter 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
   1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
   2. pursuant to any other requirement of this license to perform stack testing.

B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

C. submit a written report to the Department within thirty (30) days from date of test completion.

[MEDEP Chapter 115]

(12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and

B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[MEDEP Chapter 115]

(13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [MEDEP Chapter 115]

(14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [MEDEP Chapter 115]

(15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [MEDEP Chapter 115]

SPECIFIC CONDITIONS

(16) Boilers

A. Capacity shall not exceed 10.5 MMBtu/hr in Boiler #1 and 10.5 MMBtu/hr in Boiler #2. [MEDEP Chapter 115, BPT]
B. Fuel use in Boilers #1 and #2 shall not exceed 325,000 gallons/yr of #2 fuel oil with a maximum sulfur content of 0.5% by weight. Fuel records from the supplier documenting quantity received and sulfur content shall be kept. [MEDEP Chapter 115, BPT]
C. Emissions shall not exceed the following: [MEDEP Chapter 115, Chapter 103, BPT]

Equipment		**PM**	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**
Boiler #1	lb/MMBtu	0.20	-	-	-	-	-
	lb/hr	2.10	2.10	5.29	1.50	0.38	0.04
Boiler #2	lb/MMBtu	0.12	-	-	-	-	-
	lb/hr	1.25	1.25	5.29	1.50	0.38	0.04

D. Visible emissions from Boilers #1 and #2 shall not exceed 20% opacity on a six-minute block average basis, except for no more than one, six-minute block average in a 3 hour period. [MEDEP Chapter 101]
E. Boiler #2 is subject to 40 CFR Part 60 Subpart Dc and Osram shall comply with the notification and recordkeeping requirements of 40 CFR Part 60.7. [40 CFR Part 60, Subpart Dc]

(17) Osram's Scrubbers shall be limited to the following, based on continuous operation: [MEDEP Chapter 115, BPT]

Scrubber	**Pollutant**	**lb/hr**
Acid Room	NO_X	1.0
EPA Building	NO_X	1.5

(18) Visible emissions from the Acid Room and EPA Building Scrubber systems, stacks (D and F) shall not exceed 5% on a block average basis, except for two six-minute blocks in any continuous 3-hour period. [MEDEP Chapter 115, BPT]

(19) Emergency Generators #1, #2 and #3

1. Emergency generators #1, #2 and #3 shall each be limited to 500 hr/yr of operation based on 12 month rolling total. An operational log shall be kept and an hour meter operated to demonstrate compliance. [MEDEP Chapter 115, BPT]
2. Emergency generators #1, #2 and #3 shall fire diesel fuel with a sulfur content not to exceed 0.30% until this fuel supply is exhausted. After, emergency generators #1, #2 and #3 shall fire diesel fuel with a sulfur content not to exceed 0.05%. Fuel records from the supplier documenting sulfur content shall be kept. [MEDEP Chapter 115, BPT]
3. Emissions from emergency generators #1, #2 and #3 shall each not exceed the following: [MEDEP Chapter 115, BPT]

Pollutant	**lb/hr**
PM	0.16
PM_{10}	0.16
SO_2	0.41
NO_X	5.82
CO	1.25
VOC	0.46

4. Visible emissions from the fire pump shall not exceed an opacity of 20 percent on a six (6) minute block average basis, except for no more than two (2), six (6) minute block averages in a 3-hour period. [MEDEP Chapter 101]

(20) Fire Pump

1. The fire pump shall be limited to 500 hr/yr of operation based on 12 month rolling total. An operational log shall be kept and an hour meter operated to demonstrate compliance. [MEDEP Chapter 115, BPT]
2. The fire pump shall fire diesel fuel with a sulfur content not to exceed 0.30% until this fuel supply is exhausted. After, the fire pump shall fire diesel fuel with a sulfur content not to exceed 0.05%. Fuel records from the supplier documenting sulfur content shall be kept. [MEDEP Chapter 115, BPT]

3. Emissions from the fire pump shall each not exceed the following: [MEDEP Chapter 115, BPT]

Pollutant	lb/hr
PM	0.12
PM_{10}	0.12
SO_2	0.30
NO_X	4.23
CO	0.91
VOC	0.34

4. Visible emissions from the fire pump shall not exceed an opacity of 20 percent on a six (6) minute block average basis, except for no more than two (2), six (6) minute block averages in a 3-hour period. [MEDEP Chapter 101]

(21) Osram shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (Title 38 MRSA §605).

(22) **Payment of Annual License Fee**
Osram shall pay the annual air emission license fee within 30 days of **October 31st** of each year. Pursuant to 38 MRSA §353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under 38 MRSA §341-D, subsection 3. [38 MRSA §353-A]

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 9/28/2004
Date of application acceptance: 11/3/2004

Date filed with the Board of Environmental Protection: _____

This Order prepared by Jonathan Voisine, Bureau of Air Quality.